Claims

1. A filter arrangement for use in a wireless communication transmitter, the arrangement comprising:

means for receiving digital signals to be transmitted;

DAC means for converting the digital signals to analog signals;

analogue channel filter means for filtering the analog signals; and

digital pre-equaliser filter means coupled before the DAC means for filtering the digital signals, the digital pre-equaliser filter means being adapted to substantially correct for non-ideality in the analogue channel filter means.

2. The filter arrangement of claim 1 wherein the pre-equaliser digital filter means comprises:

means for substantially correcting for non-linear phase response in the analogue channel filter means; and

means for substantially correcting for amplitude error response in the analogue channel filter means.

3. The filter arrangement of claim 1 or 2 wherein the pre-equaliser digital filter means comprises a finite impulse response (FIR) filter.

4. The filter arrangement of claim 1, 2 or 3 wherein the analogue channel filter means comprises a narrow band RF filter.

5. The filter arrangement of any preceding claim further comprising up-converter means coupled between the DAC converter means and the analogue channel filter means for providing upward frequency translation.

6. The filter arrangement of any preceding claim wherein the digital pre-equaliser filter means is adapted to adjust to a desired value the centre frequency of the analogue channel filter means.

7. The filter arrangement of any preceding claim wherein the digital pre-equaliser filter means is programmable.

8. The filter arrangement of any preceding claim wherein the digital pre-equaliser filter means has complex coefficients to provide asymmetric equalisation.

9. The filter arrangement of claim 8 wherein the largest of the filter coefficients are real.

10. The filter arrangement of any preceding claim wherein the analogue channel filter means has roll-off in the pass-band of the desired signal to achieve a specified stop-band attenuation.

11. The filter arrangement of any preceding claim wherein the arrangement is adapted for use in a received signal path.

12. The filter arrangement of any preceding claim wherein the wireless communication system is a UMTS wireless communication system.

13. The filter arrangement of any preceding claim wherein the arrangement is adapted for use in a TDD wireless communication system.

14. Node B equipment comprising the filter arrangement of any preceding claim.

15. A method for filtering in a wireless communication transmitter, the method comprising:

receiving digital signals to be transmitted;

providing DAC means converting the digital signals to analog signals;

providing analogue channel filter means filtering the analog signals; and

providing digital pre-equaliser filter means coupled before the DAC means to filter the digital signals, the digital pre-equaliser filter means substantially correcting for non-ideality in the analogue channel filter means.

16. The method of claim 15 wherein the pre-equaliser digital filter means:

substantially corrects for non-linear phase response in the analogue channel filter means; and

substantially corrects for amplitude error response in the analogue channel filter means.

17. The method of claim 15 or 16 wherein the pre-equaliser digital filter means comprises a finite impulse response (FIR) filter.

18. The method of claim 15, 16 or 17 wherein the analogue channel filter means comprises a narrow band RF filter.

19. The method of any one of claims 15-18 further comprising providing up-converter means coupled between the DAC converter means and the analogue channel filter means to provide upward frequency translation.

20. The method of any one of claims 15-19 wherein the digital pre-equaliser filter means adjusts to a desired value the centre frequency of the analogue channel filter means.

21. The method of any one of claims 15-20 wherein the digital pre-equaliser filter means is programmable.

22. The method of any one of claims 15-21 wherein the digital pre-equaliser filter means has complex coefficients to provide asymmetric equalisation.

23. The method of claim 22 wherein the largest of the filter coefficients are real.

24. The method of any one of claims 15-23 wherein the analogue channel filter means has roll-off in the pass-

band of the desired signal to achieve a specified stop-band attenuation.

25. The method of any one of claims 15-24 further comprising using the DAC means, the analogue channel filter means and the digital pre-equaliser filter means in a received signal path.

26. The method of any one of claims 15-25 wherein the wireless communication system is a UMTS wireless communication system.

27. The method of claim 26 wherein the method is performed in Node B equipment in the UMTS wireless communication system.

28. The method of any one of claims 15-27 wherein the wireless communication system is a TDD wireless communication system.

29. The method of any one of claims 15-28 wherein the step of providing the digital pre-equaliser filter means includes:

performing measurements of the analogue channel filter means, and

automatically calculating on the basis of the measurements coefficients of the digital pre-equaliser filter means.

30. The method of any one of claims 15-28 wherein the step of providing the digital pre-equaliser filter means includes:

providing quantised filter coefficients of the digital pre-equaliser filter means based on the impulse response of the digital pre-equaliser filter means.